

170534

FLOOD INSURANCE STUDY



VILLAGE OF BARTONVILLE,
ILLINOIS
PEORIA COUNTY



SEPTEMBER 16, 1980



federal emergency management agency
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Illinois River
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Panels 02P-03P

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PUBLISHED SEPARATELY:

Flood Insurance Rate Map

FLOOD INSURANCE STUDY

VILLAGE OF BARTONVILLE, PEORIA COUNTY, ILLINOIS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Village of Bartonville, Peoria County, Illinois, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert the Village of Bartonville to the regular program of flood insurance by the Federal Insurance Administration (FIA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.1 (d). In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers, Chicago District, for the Federal Insurance Administration, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 10. This study was completed in July 1978.

1.3 Coordination

Streams requiring detailed study were identified at a meeting attended by representatives of the U.S. Army Corps of Engineers (COE), the FIA, and the Village of Bartonville in September 1976.

A legal notice announcing, "Intent to Perform Flood Elevation Study" was published in the Limestone Independent News on July 13, 20, and 27, 1977.

On November 27, 1979, the results of the work by the Study Contractor were reviewed and accepted at a final coordination meeting attended by representatives of the FIA, the Study Contractor, and the village.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Village of Bartonville. The area of study is shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development or proposed construction through June 1983.

Approximate methods of analysis were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to and agreed upon by the FIA and the Village of Bartonville.

The flooding sources studied by detailed methods are listed below:

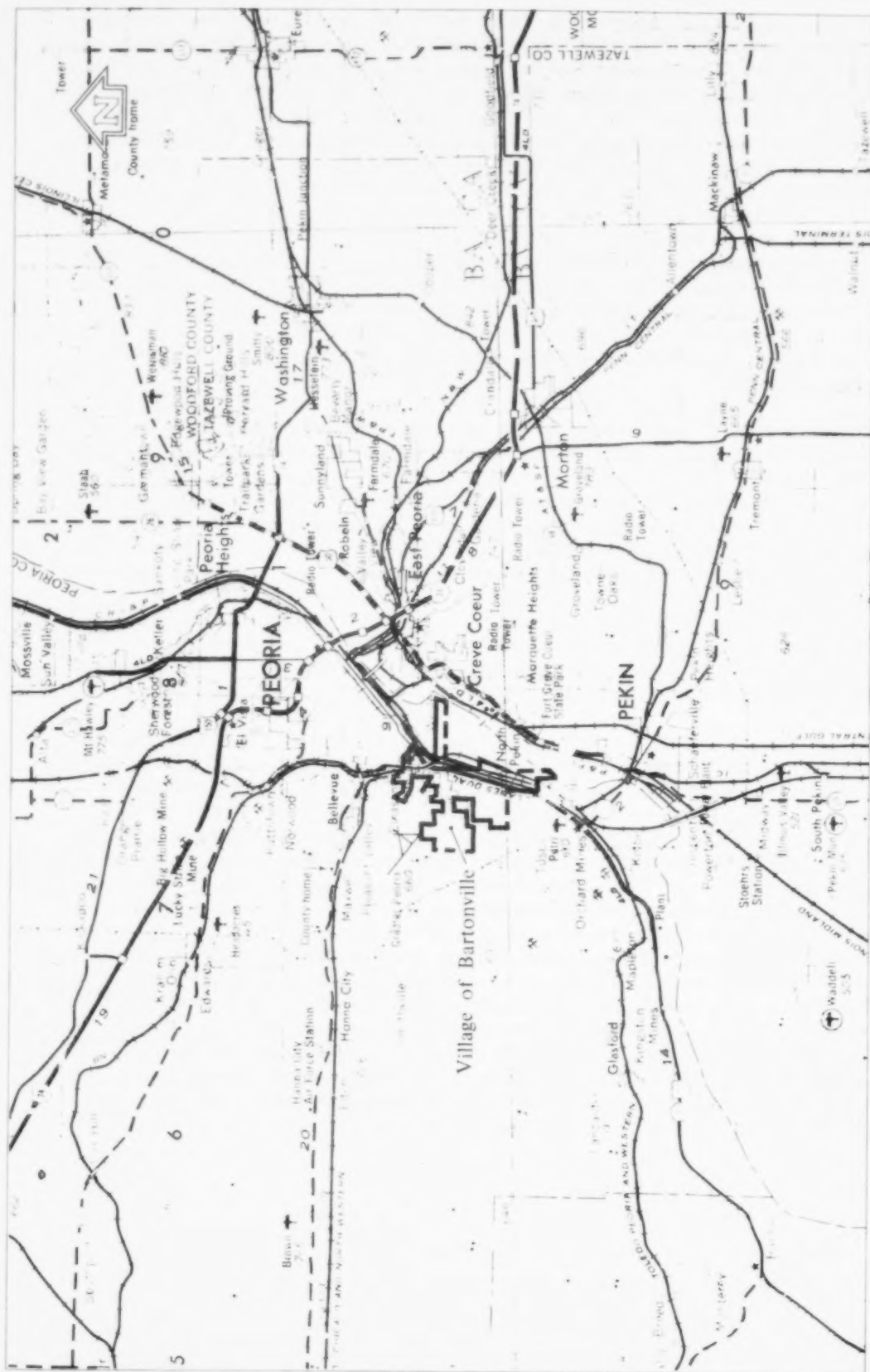
- a. the Illinois River from the southern corporate limit to the northern corporate limit; and
- b. Unnamed Tributary to Kickapoo Creek from the corporate limits along Smithville Road east to its confluence with Kickapoo Creek.

Because of the limited size of their drainage areas, approximate methods were used to study Unnamed Creek north of Peoria State Hospital (henceforth Unnamed Tributary A), Unnamed Tributary B near the southwest corporate limit, and LaMarsh Creek Tributary. Kickapoo Creek was also studied by approximate methods because of recent topography changes caused by new construction.

2.2 Community Description

The Village of Bartonville is located in central Illinois in southeastern Peoria County and is situated midway between Chicago, Illinois, and St. Louis, Missouri. Bartonville lies approximately 60 miles north of Springfield, Illinois. Peoria forms Bartonville's northern border, and a portion of the Illinois River and unincorporated Tazewell County is on the south. Unincorporated land takes up the remainder of the western, southern, and eastern borders. The total land area contained within the corporate limits is 4.6 square miles and the 1970 Census showed a population of 7,221 (Reference 1).

The Peorias Indians, a tribe of the Illiniwek Indians, lived in the area when it was first explored and settled by the French. The first white men to visit the area were a party of Frenchmen: Louis de Joliet, Pere Jacques Marquette, and five others, who paddled up the Illinois River on or about September 1, 1673 (Reference 2). Peoria County was created by an act of the Illinois General Assembly, dated January 13, 1825, and a township form



FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

VILLAGE OF BARTONVILLE, IL (PEORIA CO.)

FIGURE 1

APPROXIMATE SCALE

12 MILES

VICINITY MAP

of government was adopted in 1850, with the name Limestone Township being selected by the local residents. The area was first known as "Bartonville" in 1878 when a Post Office was named after W.C.H. Barton. Bartonville was a rowdy place before the turn of the century, described by an early settler as being populated "by dogs and drunken miners." Bartonville was incorporated in 1903, when mining was the main industry; there are still a few mines but now over half of the working force is engaged in manufacturing (Reference 3).

The climate of the area is typically continental with changeable weather and a wide range of temperature extremes. The highest temperature ever recorded at Peoria is 113 degrees Fahrenheit (F.); the lowest is -27 degrees F. The average maximum and minimum temperatures for the period 1941 to 1970 at Peoria are 60.5 degrees F. and 41.1 degrees F., respectively. The average annual rainfall at Peoria for the same 30-year period is 35.06 inches (Reference 2).

The Unnamed Tributary to Kickapoo Creek, which drains an area of 1.29 square miles, begins near the north-central part of Bartonville and flows east along Smithville Road to its confluence with Kickapoo Creek in northeastern Bartonville. The study area encompasses most of the tributary's course which runs through Lauterbach Park, then through residential back yards. Banks are generally steep with a few areas having shallow banks. Kickapoo Creek's headwaters rise in extreme northern Peoria County and flow south along the 24-mile length of the creek to its confluence with the Illinois River. An area of over 300 square miles is drained by the creek. The study area includes the portion of the creek from 1.7 miles to 2.5 miles above the mouth which forms part of Bartonville's eastern border (Reference 2).

The Illinois River is formed by the confluence of the Kankakee and Des Plaines Rivers in northeastern Illinois. Two portions of the Illinois River, mile 159 and mile 155, are included in the study area, with an approximate drainage area of 15,000 square miles (Reference 2). The Peoria Lock and Dam lies between the two sections of the Illinois River contained in the study and serves primarily in a navigational role. The Illinois River flood plain is relatively undeveloped within the corporate limits, with the exception of a proposed sewage treatment facility.

Unnamed Tributary A flows east through terrain which is hilly and wooded with dense vegetation. The creek has a drainage area of 0.63 square mile in the study area with a length of approximately 0.9 mile ending at U.S. Highway 24. LaMarsh Creek Tributary starts at the southeastern edge of the Peoria Municipal Airport and flows through Bartonville in a south-westerly direction. It is confined to hilly farmland with dense vegetation and a drainage area of 1.23 square miles in the study area.

2.3 Principal Flood Problems

Floods along the Unnamed Tributary to Kickapoo Creek occur mainly in the area of Lauterbach Park and east of Lauterbach Park. The banks at this point are low and 100-year flood stages would top Smithville Road.

Kickapoo Creek winds through Peoria County in a channel which ranges from shallow to deep, with flood plains which range from very narrow and steep to wide and quite flat. There are no flood control structures on the creek. Flooding is frequently caused by local heavy rainstorms, or by spring snowmelt, and is often accompanied by prolonged rainfall. Large floods on Kickapoo Creek are mentioned in local newspapers as early as 1904, and have caused extensive damage to buildings, transportation facilities, and utility lines on several occasions. Floods causing particularly heavy damage occurred in 1904, 1916, 1927, 1948, 1950, 1951, 1967, and 1974. Lesser floods have occurred frequently. During the flood of July 27, 1967, the stream attained an estimated peak discharge of 27,500 cubic feet per second (cfs) at the gage site on the U.S. Route 150 bridge northwest of Kickapoo, the greatest discharge ever recorded since the gage was installed in 1945. During the flood of June 22, 1974, the stream attained estimated peak discharges of 26,000 cfs and 48,500 cfs at the gage near Kickapoo and at the gage on the State Route 116 bridge west of Peoria, respectively. The 1974 peak was the greatest ever recorded at the Peoria site since the gage was installed in 1943, and (based on residents' comments) was apparently the greatest flood to have occurred since that area was settled (References 4, 5, and 6).

A major highway construction job has been underway on Interstate Highway 474 adjacent to Bartonville. Both Adams Street and Kickapoo Creek have been relocated, and several other structures are being built which will affect the flow of Kickapoo Creek.

The Illinois River flows past Bartonville in a broad bed between low banks. Since 1900, flow has included water diverted from Lake Michigan through the Chicago Sanitary and Ship Canal. The Peoria Dam, located just downstream from the Interstate Highway 474 bridges, is for improving river navigation and has no flood protection capability. Flooding in Bartonville is usually caused by snowmelt in the drainage area, often accompanied by prolonged early spring rains, or occasionally by prolonged late spring or fall rains alone. Floods on the Illinois River were reported in Peoria County as early as 1832. At least nine times since 1844, floods of large magnitude have occurred, causing several deaths and extensive damage to buildings, levees, crops, transportation facilities, and utility lines. Flood-related damages were frequently increased by wind-driven waves. These floods occurred in 1844, 1922, 1926, 1927, 1933, 1943, 1950, 1970, and 1974. Floods of lesser magnitudes have occurred frequently. During the flood of May 23, 1943, the Illinois River attained an estimated peak discharge of 83,100 cfs at the Kingston Mines gage site, the greatest discharge which has

been observed at that location since installation of the gage in 1939, and exceeding any discharge measured at Peoria for the period 1903 to 1939. The 1943 flood reached a higher elevation at Peoria than the flood of 1844, which was the previous flood of record, but no estimate of the peak discharge of the early event has been made (References 4 and 5).

2.4 Flood Protection Measures

There are two levees in the proximity of the study area. One levee is located along the south portion of the Illinois River south of this study area. The Pekin and LaMarsh Drainage and Levee District was organized in the early 1900's and the levee was built shortly afterwards. This levee extends from the mouth of LaMarsh Creek, at about river mile 149.7, to about river mile 155.2. Still operated and maintained by the Levee District, this levee was improved by a COE project completed in 1940. Subsidence and lack of maintenance of the levee top at some places, however, leaves the area behind this levee vulnerable to both the 100- and 500-year floods. Directly east of Bartonville is a levee built and maintained by the industries it protects. This levee, along with railroad embankments, offer protection against floodwaters on Bartonville's eastern border. In case both existing levees fail, emergency preparedness measures have been formulated in the event of impending flood hazards (Reference 2).

The Peoria Lock and Dam, situated just downstream from the Interstate Highway 474 bridges, was designed only to improve river navigation, and provides no flood control. In fact, the gate segment of the structure is designed to be lowered during periods of high flow, to allow river craft to pass without "locking through."

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one percent chance of annual occurrence) in any 50-year period is about 40 percent (four in ten), and for any 90-year period, the risk increases to about 60 percent (six in ten). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

Analyses for the Illinois River and Kickapoo Creek were taken directly from the Peoria County, Illinois, Flood Insurance Study (Reference 2). For the Illinois River, peak discharge-frequency data were based on statistical analyses of stage-discharge records covering a 34-year period at the gaging station operated by the U.S. Geological Survey (USGS) at Kingston Mines, and covering a 36-year period at the Peoria Boatyard, previous site of the Kingston Mines site (Reference 7). These analyses followed the standard log-Pearson Type III method as outlined by the U.S. Water Resources Council (Reference 7).

For the Unnamed Tributary to Kickapoo Creek, several methods were used to estimate peak flood flows, they were: State of Illinois Regression Equations (Reference 4), Soil Conservation Service (SCS) TR-55 Method (Reference 8), Slope Versus Discharge/Square Mile Curve (Reference 2), HEC-1 Model (Reference 9), and Regional Frequency Analysis (Reference 10). Of these methods, the State of Illinois Regression Equations were used to calculate the 10-, 50-, and 100-year peak flows (Reference 4). Watershed characteristics were taken from Magnitude and Frequencies of Floods in Illinois (Reference 4), and from survey data for the Bartonville Flood Insurance Study. The 500-year peak discharge was estimated by extrapolating results for the more frequent events on log-probability paper.

For the approximate study of Kickapoo Creek, initial flood flow frequency data were based upon statistical analyses of stage-discharge records covering 30-year periods at two gaging stations: one at Peoria and the other near Kickapoo. Both stations are operated by the USGS (Reference 5). The analyses included both the standard log-Pearson Type III method and the historically weighted log-Pearson Type III method, as outlined by the U.S. Water Resources Council (Reference 7). In neither case, could satisfactory flood flow frequency data be generated. Peak discharges for the Peoria gage site (drainage area = 296 square miles) were much lower than peak discharges of floods of the same frequency at the gage site near Kickapoo, with a much smaller drainage area (120 square miles). A more rigorous analysis was therefore undertaken. Main elements of the analysis included development of unit hydrographs for 12 major subareas of the Kickapoo Creek drainage basin, streamflow routing along the subarea stream reaches, and estimating peak amounts of rainfall runoff from storms of known frequency over the subareas.

For the gage near Kickapoo, the analytically developed 100-year peak discharge checked very closely with the 100-year event previously determined by the historically weighted log-Pearson Type III methods. The other

discharge estimates which had been developed for the gage site by the weighted log-Pearson Type III method were therefore assumed to be correct. Routing of the hydrographs from the Kickapoo gage downstream to the mouth resulted in peak discharges for the Peoria gage site which were larger than those at the Kickapoo gage site, as is the usual case for streams such as Kickapoo Creek. From the results of the routing, a straight-line flood flow versus drainage area graph was developed, and discharges at selected points on the study reach were determined.

For the approximate discharges on LaMarsh Creek Tributary and Unnamed Tributary A, the State of Illinois Regression Equations were used (Reference 4).

Peak discharges for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
ILLINOIS RIVER					
At the Pekin- LaMarsh Levee (mile 155)	15,000	66,800	88,700	98,000	120,000
UNNAMED TRIBUTARY TO KICKAPOO CREEK					
At mouth	1.29	510	875	1,130	1,700
Approximately 425 feet upstream of Roosevelt Street	0.87	375	660	855	1,340
Approximately 53 feet upstream of the Lauderbach Park Access Road	0.49	240	430	575	895

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the streams in the community were carried out to provide estimates of the elevations of the floods of the selected recurrence intervals along each flooding source studied in detail.

Cross sections for the backwater analyses of the Illinois River and Unnamed Tributary to Kickapoo Creek were determined from field surveys, with the overbank portion of the Illinois River cross sections being determined from topographic maps (References 11 and 12). Cross section locations were at close intervals above and below bridges, dams, and culverts in order to compute the significant backwater effects of these structures.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 2).

Channel roughness factors (Manning's "n") for the computations on the Illinois River and Unnamed Tributary to Kickapoo Creek were assigned on the basis of field inspection of flood plain areas. For the Unnamed Tributary to Kickapoo Creek, the factors ranged from 0.015 to 0.08 in the main channel and from 0.03 to 0.05 in the overbanks. On the Illinois River, 0.03 was used for the main channel, and 0.05 was used for the overbanks.

Starting elevations for the 10-, 50-, and 100-year floods of the Illinois River at the southern county boundary were based upon a discharge recurrence interval rating curve previously developed from data from the nearby gage at Kingston Mines. The 500-year event starting elevation was developed from storage-discharge routing computations for the Illinois River at the southern county boundary. For the Unnamed Tributary to Kickapoo Creek, starting elevations were computed by the COE HEC-2 model by using the average slope of the stream and flow at the mouth (Reference 13). Water-surface elevations of floods of the selected recurrence intervals for the detailed analyses were computed through use of the COE HEC-2 step-backwater computer program (Reference 13). Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals.

For Kickapoo Creek, a 100-year flood profile was developed using cross sectional geometry determined by the COE and Daily and Associates, Engineers, Inc. (Reference 14). Taking into account the new construction along Interstate Highway 474, the HEC-2 model developed starting elevations by using 49,100 cfs, the discharge for Kickapoo Creek. This figure was computed by the COE in their hydrologic analysis.

For Unnamed Tributary A and LaMarsh Creek Tributary, the approximate flood elevations were developed through normal depth analysis.

Flood elevations can often be increased by ice jams during spring thaws, or by debris clogging bridges. The hydraulic analyses for this study, however, are based only on the effects of unobstructed flow. The flood elevations as shown on the profiles are considered valid only if hydraulic structures in general remain unobstructed and do not fail.

All elevations are referenced from National Geodetic Vertical Datum of 1929 (NGVD); elevation reference marks used in the study are shown on the maps.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100-year and the 500-year floods have been delineated using the elevations determined at each cross section; between cross sections the boundaries were interpolated using topographic maps at scales of 1:12000 and 1:24000, with contour intervals of 10 feet (References 11 and 12). For streams studied by approximate methods, the boundary of the 100-year flood was delineated using the topographic maps referenced above.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 2). Small areas within the flood boundaries may lie above the flood elevations and, therefore, not be subject to flooding; owing to lack of detailed topographical information or to limitations of the map scale, such areas are not shown. In cases where the 100-year and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of the FIA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. In Illinois,

though, under Revised Statutes, Section 65f, Chapter 19 as amended 1973 (Reference 15), encroachment in the flood plain is limited to that which will cause only an insignificant increase in flood heights. Thus, at the recommendation of the Illinois Division of Water Resources, a floodway having no more than a 0.1-foot surcharge has been delineated for this study (Reference 16).

The floodway recommended for this study was computed on the basis of equal conveyance reduction from each side of the flood plain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed (Table 2). The floodway for the Illinois River extends beyond the corporate limits.

As shown on the Flood Boundary and Floodway Map (Exhibit 2), the floodway boundaries were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 0.1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

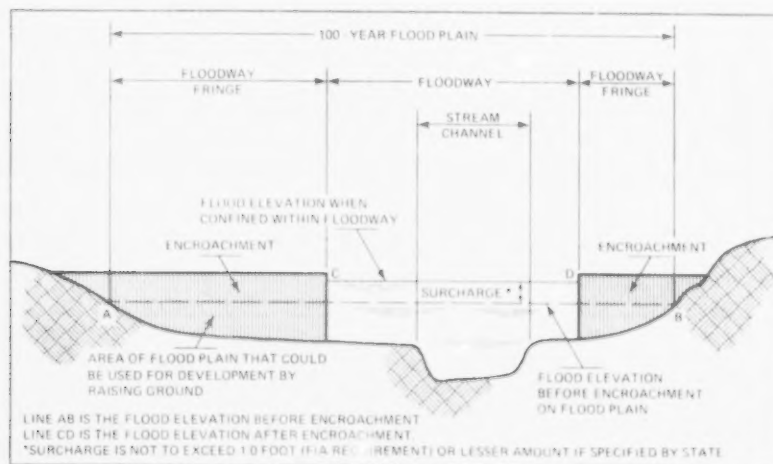


FIGURE 2 - Floodway Schematic

The floodways in this report are recommended to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION		
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	WITH FLOODWAY (NGVD)	WITHOUT FLOODWAY (NGVD)	DIFFERENCE
ILLINOIS RIVER							
A	156	6626 ²	141,495	0.7	458.6	458.6	0.0
B	159	3430 ²	54,230	1.8	459.0	458.9	0.1
UNNAMED TRIBUTARY TO KICKAPOO CREEK							
A	0.000	31	181	6.2	450.0	449.9	0.1
B	0.074	91	244	4.6	456.0	456.0	0.0
C	0.304	56	153	7.4	467.0	467.0	0.0
D	0.744	43	203	4.2	501.0	500.9	0.1
E	0.810	33	155	5.5	508.0	508.0	0.0
F	0.961	23 ²	93	6.2	521.3	521.2	0.1

¹MILES ABOVE MOUTH

²THIS WIDTH EXTENDS BEYOND CORPORATE LIMITS

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VILLAGE OF BARTONVILLE, IL
(PEORIA CO.)

FLOODWAY DATA

ILLINOIS RIVER - UNNAMED TRIBUTARY TO KICKAPOO CREEK

TABLE 2

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHF), and flood insurance zone designations for each flooding source affecting the Village of Bartonville.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

<u>Average Difference Between 10- and 100-year Floods</u>	<u>Variation</u>
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the Village of Bartonville are shown on the Flood Profiles (Exhibit 1) and are summarized in the Flood Insurance Zone Data Table (Table 3).

5.2 Flood Hazard Factors

The FHF is used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the Village of Bartonville was divided into zones, each

having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations are shown or FHF's determined.
Zones A3, A5, A13:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations are shown, and zones subdivided according to FHF.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; or areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHF's, flood insurance zones, and base flood elevations for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Village of Bartonville is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

6.0 OTHER STUDIES

A Comprehensive Study on the Illinois River and Tributaries, Wisconsin, Indiana, and Illinois, by the COE, was presented to Congress in July 1962 (Reference 17). Flood control for Kickapoo Creek was considered in that study, and the best plan, for flood control, recreation, and fish and wildlife benefits was found to be

FLOODING SOURCE	PANEL ¹	ELEVATION DIFFERENCE ² BETWEEN 1.0% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION ³ (NGVD)
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR)			
ILLINOIS RIVER REACH 1 UNNAMED TRIBUTARY TO KICKAPOO CREEK	0005	-6.6	-2.0	3.5	065	A13	VARIES--SEE MAP
REACH 1 REACH 2 REACH 3	0005 0005 0005	-2.3 -1.6 -1.6	-1.1 -0.6 -0.7	1.3 1.2 1.3	025 015 015	A5 A3 A3	VARIES--SEE MAP VARIES--SEE MAP VARIES--SEE MAP

¹ FLOOD INSURANCE RATE MAP PANEL

² WEIGHTED AVERAGE

³ ROUNDED TO NEAREST FOOT

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VILLAGE OF BARTONVILLE, IL
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FLOOD INSURANCE ZONE DATA

ILLINOIS RIVER - UNNAMED TRIBUTARY TO KICKAPOO CREEK

TABLE 3

infeasible by a wide margin. A restudy by the COE of the Kickapoo Creek basin for flood control and allied water purposes was authorized in October 1966, but is now inactive due to lack of study funds.

The then State Division of Waterways published a Kickapoo Creek Feasibility Study in 1971 (Reference 18). This study considered the case for reservoirs on Kickapoo Creek in the vicinity of Jubilee College State Park and near Oak Hill, and found that economically feasible projects for flood control and water supply do not exist in the basin.

The State Division of Water Resources, by contract with Daily & Associates, Engineers, Inc., published the Kickapoo Creek Strategic Planning Study (Reference 14), which revealed changes in the Kickapoo Creek flood profiles from the Peoria County Flood Insurance Study (Reference 2)

Flood Insurance Studies for the City of Peoria and the unincorporated areas of Peoria County and Tazewell County are in agreement with this study (References 19, 2, and 20)

Daily & Associates, Engineers, Inc., is currently studying possible levee construction on Kickapoo Creek near Interstate Highway 474 (Reference 14).

A Flood Hazard Boundary Map has been published by the Federal Insurance Administration (Reference 21). The differences between the Flood Hazard Boundary Map and this study are justified due to the more detailed nature of this Flood Insurance Study.

This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the National Flood Insurance Program.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic and other pertinent data used in this study can be obtained by contacting the Insurance and Mitigation Division, Federal Emergency Management Agency, One North Dearborn Street, Chicago, Illinois 60602.

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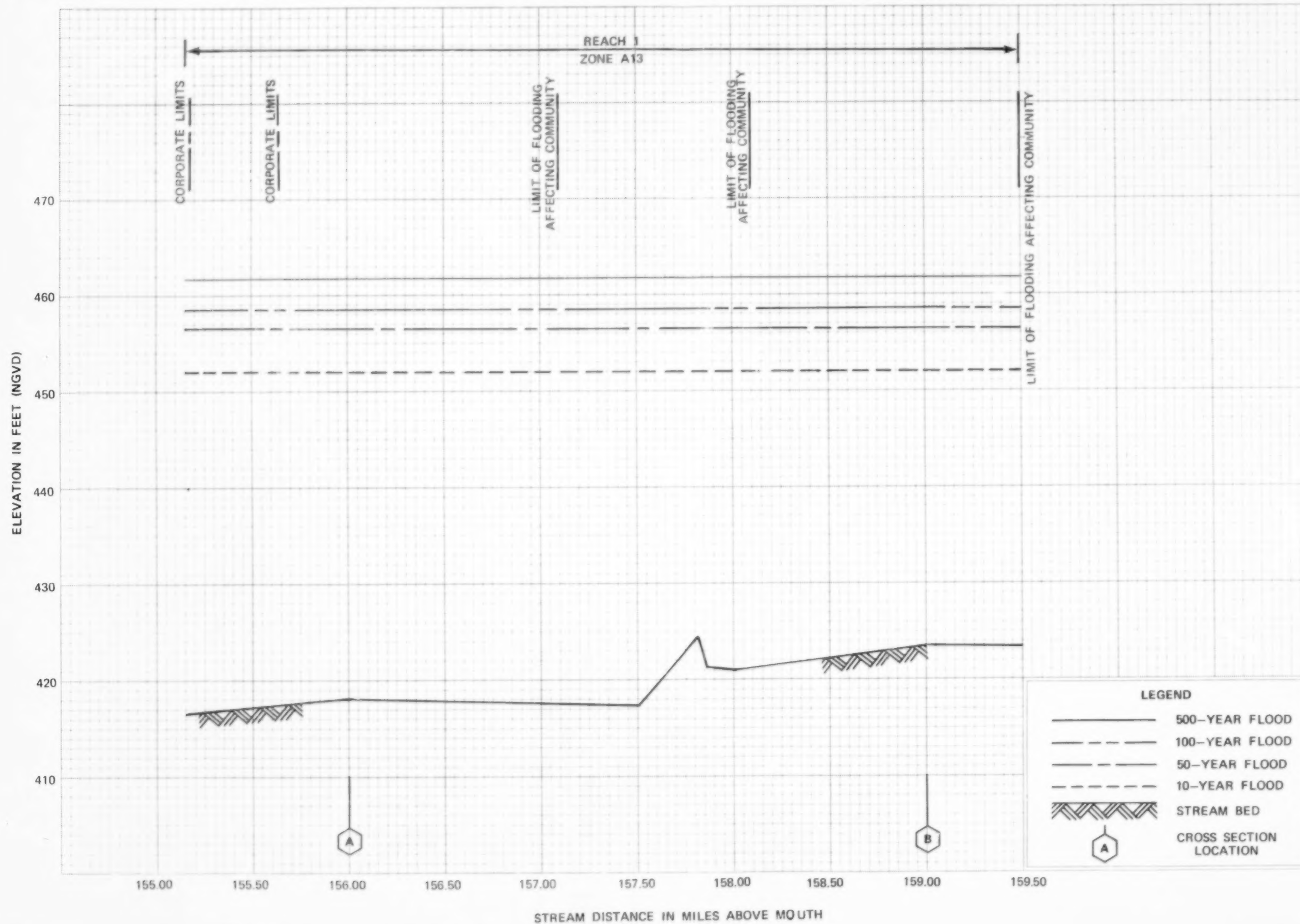
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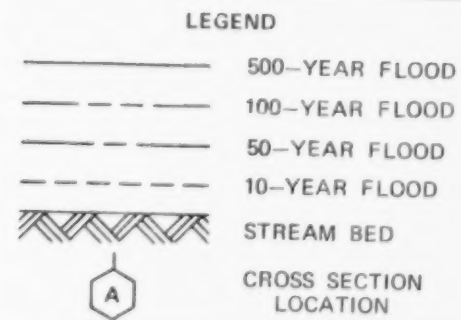
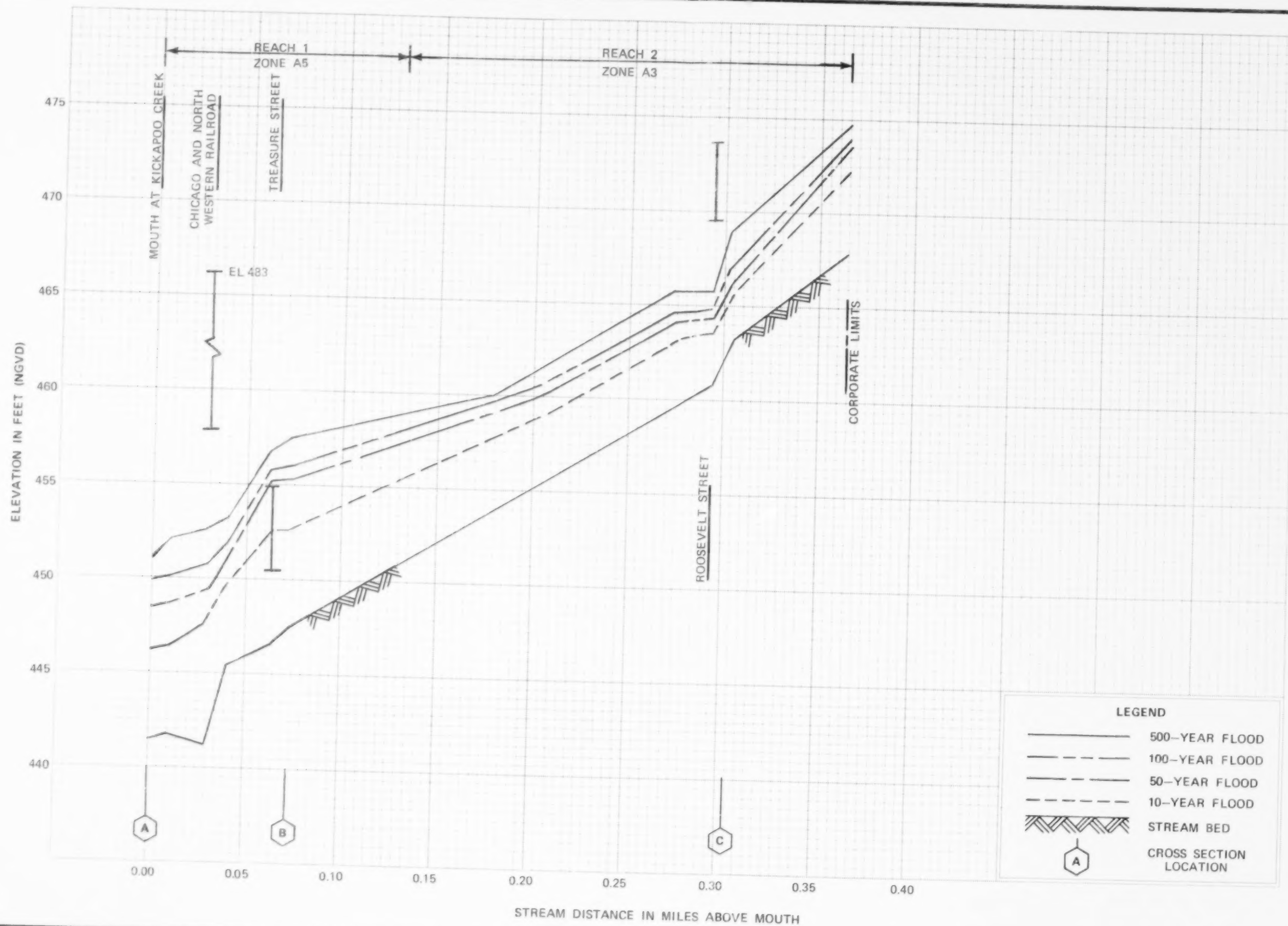
FLOOD PROFILES

ILLINOIS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

VILLAGE OF BARTONVILLE, IL
(PEORIA CO.)

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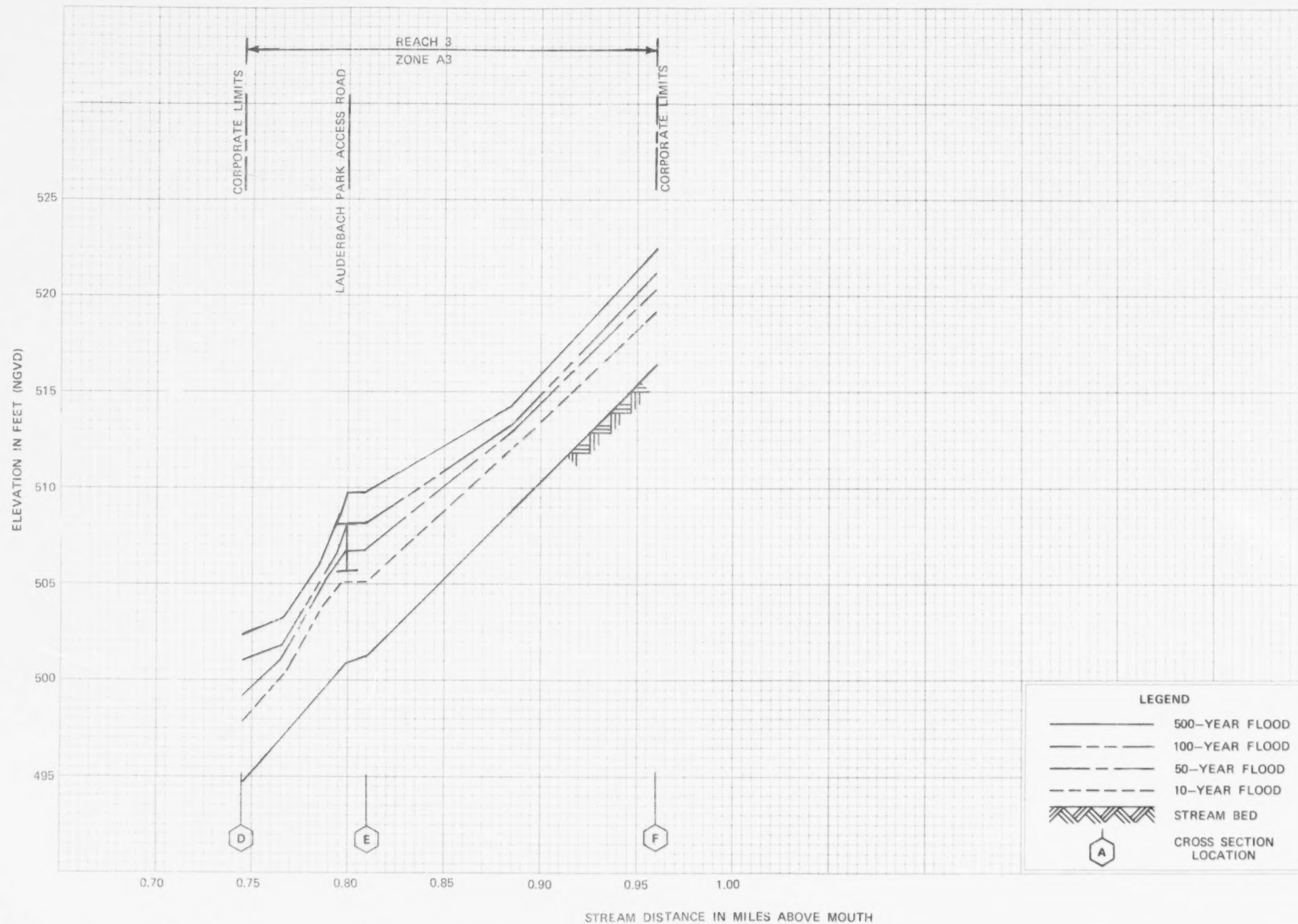


FLOOD PROFILES

UNNAMED TRIBUTARY TO KICKAPOO CREEK

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